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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/777,842

02/12/2004

Larry D. Seiler

00100.02.0039

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29153 7590 03/25/2009  
ADVANCED MICRO DEVICES, INC.  
C/O VEDDER PRICE P.C.  
222 N.LASALLE STREET  
CHICAGO, IL 60601

EXAMINER

GOOD JOHNSON, MOTILEWA

ART UNIT

PAPER NUMBER

2628

MAIL DATE

DELIVERY MODE

03/25/2009

PAPER

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* LARRY D. SEILER and LAURENT LEFEBVRE

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Appeal 2008-5546  
Application 10/777,842  
Technology Center 2600

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Decided<sup>1</sup>: March 25, 2009

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Before KENNETH W. HAIRSTON, ROBERT E. NAPPI, and  
KEVIN F. TURNER, *Administrative Patent Judges*.

TURNER, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134 from the final Rejection of claims 1-5, 7, and 8. We have jurisdiction under 35 U.S.C. § 6(b). We REVERSE.

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<sup>1</sup> The two-month period of filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

Appellants' claimed invention relates to graphics processors, and more specifically to the processing of pixels to improve image appearance. (Spec. 2:3-4).

Claims 1-5, 7-9, and 11-13 are pending in the instant application. Claims 9 and 11-13 have been withdrawn by Appellants and claims 1-5, 7, and 8 have been finally rejected. Appellants attempted to add claim 14 in the after-final amendment of March 29, 2007, but that amendment was not entered.

Claim 1 is illustrative of the invention and reads as follows:

1. An apparatus comprising:

a rasterizer operative to generate fragment data for a pixel to be rendered in response to primitive information; and

a pixel appearance determination circuit, coupled to the rasterizer, operative to determine a pixel appearance value based on the fragment data by dropping the fragment data having the least effect on pixel appearance, wherein dropping the fragment data further includes assigning the fragment data to be dropped with a no color designation.

(App. Br. 25, Appendix A, Claims Appendix).

The Examiner relies on the following prior art references to show unpatentability:

|                      |                 |               |
|----------------------|-----------------|---------------|
| Jouppi               | 6,204,859 B1    | Mar. 20, 2001 |
| Duluk, Jr. ("Duluk") | 6,476,807 B1    | Nov. 5, 2002  |
| Chen                 | 2003/0030642 A1 | Feb. 13, 2003 |
| Everitt              | 2004/0169651 A1 | Sep. 2, 2004  |

Claims 1-3, 5, and 7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Chen and Jouppi.

Claim 4 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Chen, Jouppi, and Duluk.

Claim 8 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Chen, Jouppi, and Everitt.

Appellants argue that Jouppi teaches fragments which have an alpha value of zero are discarded before subsequent processing of the fragment data, while the claims require that the dropped fragment data be assigned a no color designation, which is not the same or obvious over the disclosure of Jouppi (App. Br. 17-18; Reply Br. 9-12). Appellants also argue that the cited references fail to teach all of the elements of claim 8 and that Everitt teaches the opposite approach than what is claimed (App. Br. 18-23; Reply Br. 12-13). Lastly, Appellants argue that because all of the factors discussed in *Graham v. John Deere Co.*, 383 U.S. 1 (1966), (i.e. the “*Graham* factors”), were not explicitly discussed in the rejections, the rejections must be reversed (App. Br. 18 and 23; Reply Br. 13).

The Examiner finds that disclosure of assigning a default fragment color designation in Jouppi is analogous to assigning the fragment data to be dropped with a no color designation (Ans. 9-11). The Examiner also finds that Everitt discloses determining whether the fragment data includes masked sample data (Ans. 11-13). The Examiner also responds to Appellants’ allegation of missing Graham factors by indicating that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference (Ans. 13-14).

Rather than reiterate all of the arguments of Appellants and the Examiner, reference is made to the Briefs and the Answer for the respective

details. Only those arguments actually made by Appellants have been considered in this decision. Arguments which Appellants could have made but chose not to make in the Briefs have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii).

## ISSUES

(i) Under 35 U.S.C. § 103(a), with respect to appealed claims 1-3, 5, and 7, would one of ordinary skill in the art at the time of the invention have found it obvious to combine Chen and Jouppi to render the claimed invention unpatentable?

(ii) Under 35 U.S.C. § 103(a), with respect to appealed claim 4, would one of ordinary skill in the art at the time of the invention have found it obvious to combine Chen, Jouppi, and Duluk to render the claimed invention unpatentable?

(iii) Under 35 U.S.C. § 103(a), with respect to appealed claim 8, would one of ordinary skill in the art at the time of the invention have found it obvious to combine Chen, Jouppi, and Everitt to render the claimed invention unpatentable?

## FINDINGS OF FACT

1. A graphics processor, according to the present application, includes a rasterizer and a pixel appearance determination circuit (PADC). In response to primitive information, the rasterizer generates fragment data for pixel to be rendered and the PADC determines a pixel appearance value of a given pixel based on the fragment data for each primitive that intersects the pixel (Spec. 6:12 – 7:25; Fig. 4, elements 40, 44-46, 51).

2. In one embodiment of the present application, when the amount of stored pixel fragment data for a given pixel exceeds the maximum number of fragments, the PADC determines which fragment data have the least effect on pixel appearance and assigns a no color designation to the fragment data to be dropped (Spec. 8:3-22 and 9:3-30; Fig. 5A, elements 100-102).

3. Independent claim 1 recites, in part, “wherein dropping the fragment data further includes *assigning* the fragment data to be dropped *with a no color designation.*” (App Br. 25, Claims Appendix A, emphasis added).

4. Chen is directed to graphical processing. The graphics processor has a rasterizer chip to generate fragment data for a pixel in communication with a memory chip having a logic core. The logic core can repack the data that results in a reduction in the number of bits, where the logic core determines which bits are least important and eliminates those (Abstract; ¶¶ [0016] and [0025]; Figs. 1 and 2, elements 10, 16, 50).

5. Jouppi is directed to processes for determination of a color for pixels in a graphics system. When a new fragment is visible in the given pixel, fragment values are discarded. Strategies for which fragment values are to be discarded include discarding the fragment value with the greatest Z-depth or the fragment value that produces the smallest color difference (Abstract).

6. With respect to strategies for which fragment value to drop, Jouppi details:

If the new fragment has a smaller Z-depth value than the Z-depth value of a stored fragment for any covered subpixel sample S1-S4, then the new fragment is in front of that stored fragment and, consequently, is visible. An

exception, however, is when the new fragment has an Alpha value of 0.0. In this instance the new fragment is completely transparent. *The graphics accelerator 108 does not need to store the fragment value of the new fragment because the new fragment is, in effect, invisible.*

(Col. 15, ll. 25-33, emphasis added).

## PRINCIPLES OF LAW

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. *See In re Fine*, 837 F.2d 1071, 1073 (Fed. Cir. 1988).

[T]here must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness' . . . [H]owever, the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.

*KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

During examination, the claims must be interpreted as broadly as their terms reasonably allow. *In re Am. Acad. of Sci. Tech Center*, 367 F.3d 1359, 1369 (Fed. Cir. 2004). When the specification states the meaning that a term in the claim is intended to have, the claim is examined using that meaning, in order to achieve a complete exploration of the applicant's invention and its relation to the prior art. *In re Zletz*, 893 F.2d 319, 321-22 (Fed. Cir. 1989). “Even when guidance is not provided in explicit definitional format, the specification may define claim terms by implication such that the meaning may be found in or ascertained by a reading of the patent documents.”

*Phillips v. AWH Corp.*, 415 F.3d 1303, 1321 (Fed. Cir. 2005) (citations and internal quotation marks omitted).

## ANALYSIS

Appellants argue that Jouppi teaches fragments which have an alpha value of zero are discarded before subsequent processing of the fragment data, (FF 6), while the claims require that the dropped fragment data be assigned a no color designation, (FF 3), which is not the same or obvious over the disclosure of Jouppi (App. Br. 17-18; Reply Br. 9-12). Appellants argue that no assignment of color designation in the cited section of Jouppi occurs because the alpha value of zero results in the fragment data being discarded and the last limitation in claim 1 is not met (*Id.*). The Examiner finds that “Jouppi teaches dropping the fragment data with no color designation (completely transparency)” (Ans. 8). We find Appellants’ arguments to be compelling.

A process of dropping fragment data with no color designation is not necessarily the same as assigning fragment data to be dropped with a no color designation. As Appellants suggest, Jouppi does not disclose the assignment of color designation; data fragments already have alpha values which are not disclosed to be reassigned in Jouppi. We agree with Appellants that the discarding occurs based on the alpha value, in that embodiment of Jouppi, before subsequent processing of fragment data to determine a pixel color. As such, we find no disclosure in Jouppi of assignment of no color designation to fragment data. Additionally, the Examiner has not provided any basis for such assignment being an obvious variation on the processes occurring in Jouppi. Thus, we do not find that the



combination of Chen and Jouppi teaches or suggests all of the elements of independent claim 1.

The Examiner also finds that Jouppi discloses that “the pixel memory can be initialized to contain a default fragment value, which represents when no fragments cover a particular sub-pixel or when all fragments are transparent[.]” (Ans. 9). However, we agree with Appellants that this process occurs before the determinations of a fragment’s visibility and not a part of dropping fragment data having the least effect on pixel appearance, and that the default value is a background color and not a no color designation. (Reply Br. 9). While there are similarities in the aims of the present application, Chen, and Jouppi, we do not find the combination of Chen and Jouppi as rendering claim 1 to be obvious.

Accordingly, we conclude that Appellants have shown that the Examiner erred in rejecting claim 1 under 35 U.S.C. § 103(a) over Chen and Jouppi. We further note with Appellants, (App. Br. 14 and 22), that neither Duluk nor Everitt appears to cure the deficiencies of Chen and Jouppi discussed herein. As such, we find that the rejections of claims 2-5, 7, and 8 were also made in error for the same reasons discussed *supra*.

In addition, while Appellants have raised separate and additional arguments with respect to the rejection of claim 8, we need not reach those arguments to reverse the rejection of that claim.

We further note that Appellants raised arguments alleging that specific *Graham* factors were not addressed in the obviousness rejections and that the rejections were necessarily improper (App. Br. 18 and 23; Reply Br. 13). While we agree that the Examiner’s response to this argument was an apparent non-sequitur, (Ans. 13; Reply Br. 13), we cannot agree with

Appellants' argument. If the level of skill is at issue, it must be determined, but if the general level of skill in the art is understood, it is not necessarily a deficiency that it is not spelled out. Similarly, we can find no evidence of secondary considerations raised by Appellants in the record, other than arguments raised by counsel, such that a failure to consider such a lack of evidence cannot be a detriment to an obviousness rejection.

### CONCLUSION

The decision of the Examiner rejecting claims 1-3, 5, and 7 under 35 U.S.C. § 103(a) as being unpatentable over Chen and Jouppi, rejecting claim 4 over Chen, Jouppi, and Duluk, and rejecting claim 8 over Chen, Jouppi and Everitt, is reversed.

### DECISION

The Examiner's rejections of claims 1-5, 7, and 8 before us on appeal are REVERSED.

REVERSED

Appeal 2008-5546  
Application 10/777,842

MAT

cc:

ADVANCED MICRO DEVICES, INC.  
C/O VEDDER PRICE P.C.  
222 N.LASALLE STREET  
CHICAGO, IL 60601